TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SC5200

POWER AMPLIFIER APPLICATIONS

Unit in mm

- Complementary to 2SA1943
- Recommended for 100W High Fidelity Audio Frequency Amplifier Output Stage.

1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
JEITA	—
TOSHIBA	2-21F1A

Weight : 9.75g (Typ.)

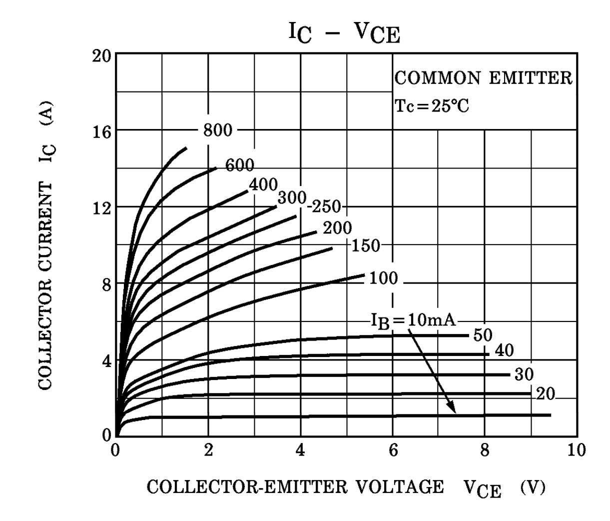
MAXIMUM RATINGS (Tc = 25°C)

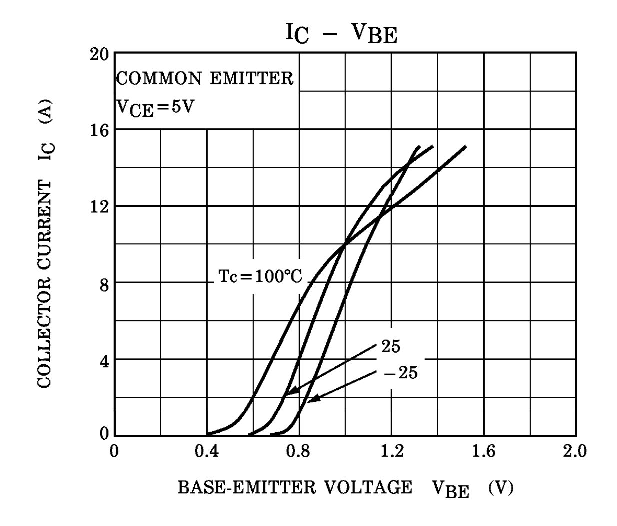
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	230	V
Collector-Emitter Voltage	V_{CEO}	230	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	15	A
Base Current	I_B	1.5	A
Collector Power Dissipation (Tc = 25°C)	P_C	150	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

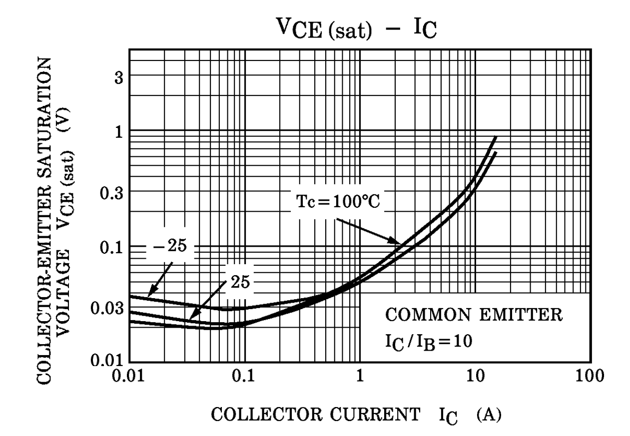
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

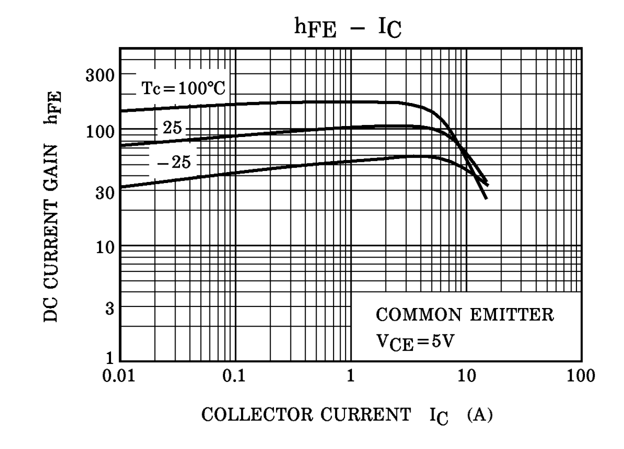
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 230V, I_E = 0	—	—	5.0	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	—	—	5.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR) CEO}$	I_C = 50mA, I_B = 0	230	—	—	V
DC Current Gain	$h_{FE (1)}$ (Note)	V_{CE} = 5V, I_C = 1A	55	—	160	
	$h_{FE (2)}$	V_{CE} = 5V, I_C = 7A	35	60	—	
Collector-Emitter Saturation Voltage	$V_{CE (sat)}$	I_C = 8A, I_B = 0.8A	—	0.40	3.0	V
Base-Emitter Voltage	V_{BE}	V_{CE} = 5V, I_C = 7A	—	1.0	1.5	V
Transition Frequency	f_T	V_{CE} = 5V, I_C = 1A	—	30	—	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	200	—	pF

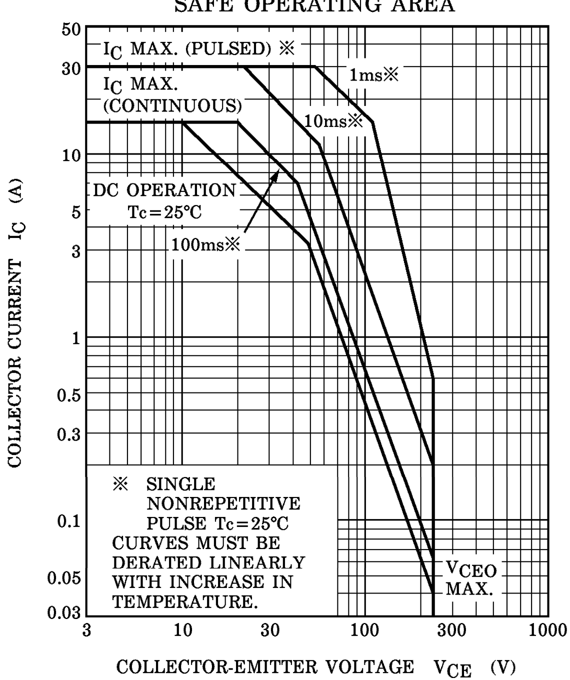
(Note) : $h_{FE (1)}$ Classification R : 55~110, O : 80~160


IC – VCE
COMMON EMITTER
Tc = 25°C
IB = 10mA
800
600
400
300
250
200
150
100
50
40
30
20
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)


IC – VBE
COMMON EMITTER
VCE = 5V
Tc = 100°C
25
−25
COLLECTOR CURRENT IC (A)
BASE-EMITTER VOLTAGE VBE (V)


VCE (sat) – IC
Tc = 100°C
−25
25
COMMON EMITTER
IC / IB = 10
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (A)


hFE – IC
Tc = 100°C
25
−25
COMMON EMITTER
VCE = 5V
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)


SAFE OPERATING AREA
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
1ms※
10ms※
DC OPERATION
Tc = 25°C
100ms※
※ SINGLE NONREPETITIVE PULSE Tc = 25°C
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE.
VCEO MAX.
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)

RESTRICTIONS ON PRODUCT USE

000707EAA

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
  In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.